



SPIE

Connecting minds. Advancing light.
SPIE is the international society for optics and photonics

- [HOME](#)
- [CONFERENCES + EXHIBITIONS](#)
- [PUBLICATIONS](#)
- [EDUCATION](#)
- [MEMBERSHIP](#)
- [INDUSTRY RESOURCES](#)
- [CAREER CENTER](#)
- [NEWS + VIDEOS](#)

IS&T/SPIE Electronic Imaging 2013

- [Invitation](#)
- [About the Organizers](#)
- [Conferences](#)
- [Courses](#)
- [Special Events](#)
- [Sponsors](#)
- [Travel](#)
- [Hotel](#)
- [Registration](#)
- [Proceedings](#)
- [For Authors/Presenters](#)
- [For Chairs/Committees](#)



3 - 7 February 2013
Hyatt Regency San Francisco Airport
Hotel
Burlingame, California United States

Conference 8658 Document Recognition and Retrieval XX

Conference Program Track: **Image Processing** ([View Daily Schedule of Program Track](#))

Available in print as **Proceedings of SPIE Volume 8658**

Dates: **Tuesday-Thursday 5 - 7 February 2013**
Location: **Sandpebble Room D**



Conference Chairs

Richard Zanibbi, Rochester Institute of Technology (United States); **Bertrand Colasnon**, Institut National des Sciences Appliquées de Rennes (France)

Program Committee

Gady Agam, Illinois Institute of Technology (United States); **Elisa H. Barney Smith**, Boise State Univ. (United States); **William A. Barrett**, Brigham Young Univ. (United States); **Kathrin Berkner**, Ricoh Innovations, Inc. (United States); **Hervé Déjean**, Xerox Research Ctr. Europe Grenoble (France); **Xiaoqing Ding**, Tsinghua Univ. (China); **David Scott Doermann**, Univ. of Maryland, College Park (United States); **Oleg D. Golubitsky**, Google Waterloo (Canada); **Jianying Hu**, IBM Thomas J. Watson Research Ctr. (United States); **Christopher Kermorvant**, A2iA SA (France); **Laurence Likforman-Sulem**, Telecom ParisTech (France); **Xiaofan Lin**, A9.com, Inc. (United States); **Marcus Liwicki**, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); **Daniel P. Lopresti**, Lehigh Univ. (United States); **Umapada Pal**, India Statistical Institute (India); **Hiroshi Sako**, Hosei Univ. (Japan); **Sargur N. Srihari**, Univ. at Buffalo (United States); **Venkata Subramaniam**, IBM India Research Lab. (India); **Kazem Taghva**, Univ. of Nevada, Las Vegas (United States); **George R. Thoma**, National Library of Medicine (United States); **Christian Viard-Gaudin**, Univ. de Nantes (France); **Berrin Yanikoglu**, Sabanci Univ. (Turkey); **Jie Zou**, National Library of Medicine (United States)

[Show All Abstracts](#)

Tuesday 5 February

Session 1: Image-Based Retrieval

Date: **Tuesday 5 February**
Time: **9:30 AM - 10:30 AM**
Room: **Sandpebble Room D**

Session Chair: **David Scott Doermann**, Univ. of Maryland, College Park (United States)

Semi-structured document image matching and recognition

Paper 8658-1
Time: **9:30 AM - 9:50 AM**
Author(s): Olivier Augereau, Nicholas Journet, Jean-Philippe Domenger, LaBRI (France)

[Show Abstract](#)

[Add to My Schedule](#)

Rotation-robust math symbol recognition and retrieval using outer contours and image subsampling

Paper 8658-2

Time: **9:50 AM - 10:10 AM**

Author(s): Siyu Zhu, Lei Hu, Richard Zanibbi, Rochester Institute of Technology (United States)

[Show Abstract](#)

[Add to My Schedule](#)

NESP: Nonlinear enhancement and selection of plane for optimal segmentation and recognition of scene word images

Paper 8658-3

Time: **10:10 AM - 10:30 AM**

Author(s): Deepak Kumar, M. N. Anil Prasad, A. G. Ramakrishnan, Indian Institute of Science (India)

[Show Abstract](#)

[Add to My Schedule](#)

Coffee Break 10:30 AM - 11:10 AM

Session 2: Handwriting

Date: **Tuesday 5 February**

Time: **11:10 AM - 12:30 PM**

Room: **Sandpebble Room D**

Session Chair: **William A. Barrett**, Brigham Young Univ. (United States)

Combining evidence using likelihood ratios in writer verification

Paper 8658-4

Time: **11:10 AM - 11:30 AM**

Author(s): Sargur N. Srihari, Univ. at Buffalo (United States); Dmitry Kovalenko, Yi Tang, Gregory Ball, Univ. at Buffalo, SUNY (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Handwritten word preprocessing for database adaptation

Paper 8658-5

Time: **11:30 AM - 11:50 AM**

Author(s): Cristina A. Oprean, Laurence Likforman-Sulem, Telecom ParisTech (France); Chafic Mokbel, University of Balamand (Lebanon)

[Show Abstract](#)

[Add to My Schedule](#)

Optimal policy for labeling training samples

Paper 8658-6

Time: **11:50 AM - 12:10 PM**

Author(s): Lester Lipsky, Univ. of Connecticut (United States); Daniel Lopresti, Lehigh Univ. (United States); George Nagy, Rensselaer Polytechnic Institute (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Evaluation of lexicon size variations on a verification and rejection system based on SVM, for accurate and robust recognition of handwritten words

Paper 8658-7

Time: **12:10 PM - 12:30 PM**

Author(s): Yann Ricquebourg, Bertrand Couasnon, IRISA / INSA de Rennes (France); Laurent Guichard, E2I SAS (France)

[Show Abstract](#)

[Add to My Schedule](#)

Lunch Break 12:30 PM - 2:00 PM

Session 3: Layout Analysis

Date: **Tuesday 5 February**

Time: **2:00 PM - 3:20 PM**

Room: **Sandpebble Room D**

Session Chair: **Daniel P. Lopresti**, Lehigh Univ. (United States)

Comic image understanding based on polygon detection

Paper 8658-8

Time: **2:00 PM - 2:20 PM**

Author(s): Luyuan Li, Yongtao Wang, Zhi Tang, Dong Liu, Peking Univ. (China)

[Show Abstract](#)

[Add to My Schedule](#)

Context modeling for text/non-text separation in free-form online handwritten documents

Paper 8658-9

Time: **2:20 PM - 2:40 PM**

Author(s): Adrien Delaye, Cheng-Lin Liu, Institute of Automation (China)

[Show Abstract](#)

[Add to My Schedule](#)

Annotating image ROIs with text descriptions for multimodal biomedical document retrieval

Paper 8658-10

Time: **2:40 PM - 3:00 PM**

Author(s): Daekeun You, National Library of Medicine (United States); Matthew Simpson, National Library of Medicine/NIH (United States); Sameer K. Antani, Dina Demner-Fushman, George R. Thoma, National Library of Medicine (United States)

No abstract available

[Add to My Schedule](#)

Graphic composite segmentation for PDF documents with complex layouts

Paper 8658-11

Time: **3:00 PM - 3:20 PM**

Author(s): Canhui Xu, Zhi Tang, Xin Tao, Cao Shi, Peking Univ. (China)

[Show Abstract](#)

[Add to My Schedule](#)

Coffee Break 3:20 PM - 4:00 PM

Session 4: Word and Symbol Spotting

Date: **Tuesday 5 February**

Time: **4:00 PM - 5:00 PM**

Room: **Sandpebble Room D**

Session Chair: **Gady Agam**, Illinois Institute of Technology (United States)

A classification-free word-spotting system

Paper 8658-12

Time: **4:00 PM - 4:20 PM**

Author(s): Nikos Vasilopoulos, Ergina Kavallieratou, Univ. of the Aegean (Greece)

[Show Abstract](#)

[Add to My Schedule](#)

Combining geometric matching with SVM to improve symbol spotting

Paper 8658-13

Time: **4:20 PM - 4:40 PM**

Author(s): Nibal Nayef, Thomas M. Breuel, Technische Univ. Kaiserslautern (Germany)

[Show Abstract](#)

[Add to My Schedule](#)

Segmentation-free keyword spotting framework using dynamic background model

Paper 8658-14

Time: **4:40 PM - 5:00 PM**

Author(s): Gaurav Kumar, Safwan R. Wshah, Venu Govindaraju, Univ. at Buffalo (United States); Ramachandrala Sitaram, Hewlett-Packard Labs. India (India)

[Show Abstract](#)

[Add to My Schedule](#)

Symposium Demonstration Session

Date: **Tuesday 5 February**

Time: **5:30 PM - 7:30 PM**

Room: **Grand Peninsula Ballroom A**

A symposium-wide demonstration session will be open to attendees 5:30 to 7:30 pm Tuesday evening. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Document Recognition and Retrieval 20th Anniversary Reception

Date: **Tuesday 5 February**

Time: **7:30 PM - 9:00 PM**

Room: **Sandpebble Room D**

All DRR attendees and authors are invited to come celebrate the 20th anniversary of the Document Recognition and Retrieval conference. Appetizers and one drink ticket will be provided for each guest.

Wednesday 6 February

Plenary Session and Conference Award Presentations

Date: **Wednesday 6 February**

Time: **8:20 AM - 9:30 AM**

Room: **Grand Peninsula Ballroom D**

A Trillion Photos, Steven Seitz, Univ. of Washington (United States)

Keynote Session I

Date: **Wednesday 6 February**

Time: **9:30 AM - 10:15 AM**

Room: **Grand Peninsula Ballroom E**

History of the Tesseract OCR engine: what worked and what didn't
(*Keynote Presentation*)

Paper 8658-15

Time: **9:30 AM - 10:15 AM**

Author(s): Ray W. Smith, Google (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Coffee Break 10:15 AM - 10:50 AM

Session 5: Historical Documents

Date: **Wednesday 6 February**

Time: **10:50 AM - 12:10 PM**

Room: **Sandpebble Room D**

Session Chair: **Elisa H. Barney Smith**, Boise State Univ. (United States)

Data acquisition from cemetery headstones

Paper 8658-16

Time: **10:50 AM - 11:10 AM**

Author(s): Cameron S. Christiansen, William A. Barrett, Brigham Young Univ. (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Automated recognition and extraction of tabular fields for the indexing of census records

Paper 8658-17

Time: **11:10 AM - 11:30 AM**

Author(s): Robert Clawson, Kevin Bauer, Glen Chidester, Milan Tyler-Pohontsch, Douglas J. Kennard, Jongha Ryu, William A. Barrett, Brigham Young Univ. (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Old document image segmentation using the autocorrelation function and multiresolution analysis

Paper 8658-18

Time: **11:30 AM - 11:50 AM**

Author(s): Maroua Mehri, Univ. de La Rochelle (France) and Univ. of Rouen (France); Petra Gomez-Krämer, Univ. de La Rochelle (France); Pierre Héroux, Univ. of Rouen (France); Rémy Mullot, Univ. de La Rochelle (France)

[Show Abstract](#)

[Add to My Schedule](#)

Lexicon-supported OCR of eighteenth century Dutch books: a case study

Paper 8658-19

Time: **11:50 AM - 12:10 PM**

Author(s): Jesse de Does, Katrien Depuydt, Leiden Univ. (Netherlands)

[Show Abstract](#)

[Add to My Schedule](#)

Lunch Break 12:10 PM - 2:00 PM

Session 6: Arabic and Chinese Character Recognition

Date: **Wednesday 6 February**

Time: **2:00 PM - 3:00 PM**

Room: **Sandpebble Room D**

Session Chair: **Laurence Likforman-Sulem**, Telecom ParisTech (France)

Character feature integration of Chinese calligraphy and font

Paper 8658-20

Time: **2:00 PM - 2:20 PM**

Author(s): Cao Shi, Jianguo Xiao, Wenhua Jia, Peking Univ. (China); Canhui Xu, Peking Univ. (China) and Beijing Founder Apabi Technology Ltd. (China)

[Show Abstract](#)

[Add to My Schedule](#)

A segmentation-free approach to Arabic and Urdu OCR

Paper 8658-21

Time: **2:20 PM - 2:40 PM**

Author(s): Nazly Sabbour, The German Univ. in Cairo (Egypt); Faisal Shafait, DFKI GmbH (Germany)

[Show Abstract](#)

[Add to My Schedule](#)

Local projection-based character segmentation method for historical Chinese documents

Paper 8658-22

Time: **2:40 PM - 3:00 PM**

Author(s): Linjie Yang, Liangrui Peng, Tsinghua Univ. (China)

[Show Abstract](#)

[Add to My Schedule](#)

Session 7: Interactive Paper Teasers

Date: **Wednesday 6 February**

Time: **3:00 PM - 3:30 PM**

Room: **Sandpebble Room D**

Authors of interactive papers will each provide a very brief overview of their poster. Each presentation will be at most one minute in duration.

Interactive Paper Session

Date: **Wednesday 6 February**

Time: **3:30 PM - 5:30 PM**

Room: **Grand Peninsula Ballroom A**

Interactive papers will be placed on display after 12:30 pm on Wednesday. An interactive paper session, with authors present at their papers, will be held Wednesday afternoon, 3:30 to 5:30 pm. Refreshments will be served.

A super resolution framework for low resolution document image OCR

Paper 8658-34

Author(s): Di Ma, Gady Agam, Illinois Institute of Technology (United States)

No abstract available

[Add to My Schedule](#)

A robust pointer segmentation in biomedical images toward building a visual ontology for biomedical article retrieval

Paper 8658-35

Author(s): Daekeun You, National Library of Medicine (United States); Matthew Simpson, National Library of Medicine/NIH (United States); Sameer K. Antani, Dina Demner-Fushman, George R. Thoma, National Library of Medicine (United States)

No abstract available

[Add to My Schedule](#)

Combining multiple thresholding binarization values to improve OCR output

Paper 8658-36

Author(s): William B. Lund, Douglas J. Kennard, Brigham Young Univ. (United States); Eric K. Ringger, Brigham Young Univ. (United States) and Computer Science Dept. (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Goal-oriented evaluation of binarization algorithms for historical document images

Paper 8658-37

Author(s): Tayo Obafemi-Ajayi, Univ. of Missouri-Columbia (United States); Gady Agam, Illinois Institute of Technology (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Document segmentation via oblique cuts

Paper 8658-38

Author(s): Jeremy P. Svendsen, Alexandra Branzan-Albu, Univ. of Victoria (Canada)

[Show Abstract](#)

[Add to My Schedule](#)

Preprocessing document images by resampling is error prone and unnecessary

Paper 8658-39

Author(s): George Nagy, Rensselaer Polytechnic Institute (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Multilingual artificial text detection and extraction from still images

Paper 8658-40

Author(s): Ahsen Raza, Ali Abidi, National Univ of Sciences and Technology (Pakistan);

Imran A. Siddiqi, Bahria Univ. (Pakistan)

[Show Abstract](#)

[Add to My Schedule](#)

A proposal system for historic Arabic manuscript transcription and retrieval

Paper 8658-41

Author(s): Abdelaziz Labben, Afef K. Echi, Unité de Recherche en Technologies de l'Information et de la Communication (Tunisia); Abdel Belaid, LORIA (France)

[Show Abstract](#)

[Add to My Schedule](#)

Evaluation of document binarization using eigen value decomposition

Paper 8658-42

Author(s): Deepak Kumar, M. N. Anil Prasad, A. G. Ramakrishnan, Indian Institute of Science (India)

[Show Abstract](#)

[Add to My Schedule](#)

Efficient symbol retrieval by building a symbol index from a collection of line drawings

Paper 8658-43

Author(s): Nibal Nayef, Thomas M. Breuel, Technische Univ. Kaiserslautern (Germany)

[Show Abstract](#)

[Add to My Schedule](#)

Thursday 7 February

Session 8: Math Recognition

Date: **Thursday 7 February**

Time: **8:50 AM - 9:30 AM**

Room: **Sandpebble Room D**

Session Chair: **Richard Zanibbi**, Rochester Institute of Technology (United States)

Structural analysis of online handwritten mathematical symbols based on support vector machines

Paper 8658-23

Time: **8:50 AM - 9:10 AM**

Author(s): Foteini Simistira, Vassilis Papavassiliou, Vassilis Katsouros, Institute for Language and Speech Processing (Greece); George Carayannis, National Technical Univ. of Athens (Greece)

[Show Abstract](#)

[Add to My Schedule](#)

Using online handwriting and audio streams for mathematical expressions recognition: a bimodal approach

Paper 8658-24

Time: **9:10 AM - 9:30 AM**

Author(s): Sofiane Medjkoune, Univ. de Nantes (France) and Le Mans Univ, LIUM Lab. (France); Harold Mouchère, Univ. de Nantes (France); Simon Petitrenaud, Univ. du Maine (France); Christian Viard-Gaudin, Univ. de Nantes (France)

[Show Abstract](#)

[Add to My Schedule](#)

Keynote Session II

Date: **Thursday 7 February**

Time: **9:45 AM - 10:30 AM**

Room: **Grand Peninsula Ballroom E**

What does the future hold for search user interfaces? (Keynote Presentation)

Paper 8658-25

Time: **9:45 AM - 10:30 AM**

Author(s): Marti Hearst, Univ. of California, Berkeley (United States)

No abstract available

[Add to My Schedule](#)

Coffee Break 10:30 AM - 10:50 AM

Session 9: Information Retrieval

Date: **Thursday 7 February**
Time: **10:50 AM - 12:30 PM**
Room: **Sandpebble Room D**

Session Chair: **Xiaofan Lin**, A9.com, Inc. (United States)

Using clustering and a modified classification algorithm for automatic text summarization

Paper 8658-26
Time: **10:50 AM - 11:10 AM**
Author(s): Abdelkrime Aries, Houda Oufaida, Ecole Nationale Supérieure d'Informatique (Algeria); Omar Nouali, Ctr. de recherche sur l'Information Scientifique et Technique (Algeria)

[Show Abstract](#)

[Add to My Schedule](#)

Evaluating supervised topic models in the presence of OCR errors

Paper 8658-27
Time: **11:10 AM - 11:30 AM**
Author(s): Daniel D. Walker IV, Eric K. Ringger, Kevin D. Seppi, Brigham Young Univ. (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Rule-based versus training-based extraction of index terms from business documents: how to combine the results

Paper 8658-28
Time: **11:30 AM - 11:50 AM**
Author(s): Daniel Schuster, Marcel Hanke, Klemens Muthmann, Daniel Esser, Technische Univ. Dresden (Germany)

[Show Abstract](#)

[Add to My Schedule](#)

Post processing with first- and second-order hidden Markov models

Paper 8658-29
Time: **11:50 AM - 12:10 PM**
Author(s): Kazem Taghva, Univ. of Nevada, Las Vegas (United States); Srijana Poudel, Univ. of Nevada (United States); Spandana Malreddy,

[Show Abstract](#)

[Add to My Schedule](#)

Combining discriminative SVM models for the improved recognition of investigator names in medical articles

Paper 8658-30
Time: **12:10 PM - 12:30 PM**
Author(s): Xiaoli Zhang, Jie Zou, Daniel X. Le, George R. Thoma, National Library of Medicine (United States)

[Show Abstract](#)

[Add to My Schedule](#)

Lunch Break 12:30 PM - 2:00 PM

Session 10: Evaluation

Date: **Thursday 7 February**
Time: **2:00 PM - 3:00 PM**
Room: **Sandpebble Room D**

Session Chair: **Kazem Taghva**, Univ. of Nevada, Las Vegas (United States)

Adaptive detection of missed text areas in OCR outputs: application to the automatic assessment of OCR quality in mass digitization projects

Paper 8658-31
Time: **2:00 PM - 2:20 PM**
Author(s): Ahmed Ben Salah, Bibliothèque nationale de France (France) and LITIS-Univ. de Rouen (France); Nicolas Ragot, Univ. de Tours (France); Thierry Paquet, Univ. de Rouen (France)

[Show Abstract](#)

[Add to My Schedule](#)

Evaluating structural pattern recognition for handwritten math via primitive label graphs

Paper 8658-32
Time: **2:20 PM - 2:40 PM**
Author(s): Richard Zanibbi, Rochester Institute of Technology (United States); Harold Mouche`re, Christian Viard-Gaudin, Univ. de Nantes (France)

[Show Abstract](#)

[Add to My Schedule](#)

**WFST-based ground truth alignment for difficult historical documents
with text modification and layout variations**

Paper 8658-33

Time: **2:40 PM - 3:00 PM**

Author(s): Mayce Al Azawi, Technische Univ. Kaiserslautern (Germany); Marcus Liwicki,
Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); Thomas M.
Breuel, Technische Univ. Kaiserslautern (Germany)

[Show Abstract](#)

[Add to My Schedule](#)

Panel Discussion: Evaluation

Date: **Thursday 7 February**

Time: **3:00 PM - 3:20 PM**

Room: **Sandpebble Room D**